July 1987

Interim Guidelines for

- **Hospitals**
- **Laboratories**
- **Pathologists**

Workplace Prevention and Management of
Acquired Immunodeficiency Syndrome (AIDS)
and Human Immunodeficiency Virus Infections (HIV)

Manitoba
Health

WORKPLACE PREVENTION AND MANAGEMENT OF

ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

AND

HUMAN IMMUNODEFICIENCY VIRUS INFECTIONS (HIV)

INTERIM

GUIDELINES FOR

HOSPITALS

LABORATORIES

PATHOLOGISTS

Manitoba Health

PREFACE

The purpose of this series of infection control guidelines is to provide information on measures which should be taken to prevent the transmission of AIDS virus (HIV) infection in the community, in institutions and in other workplaces.

AIDS virus (HIV) infection is transmitted by the exchange of blood and/or body fluids; it is basically a sexually transmitted infection and modification of sexual practices is the single most important method of preventing infection.

In the workplace, handwashing and caution in the use and disposal of needles are the most important infection control procedures.

Most persons with AIDS virus (HIV) infection are asymptomatic and many are not aware that they are infected. For this reason, appropriate precautions must be taken for <u>all</u> persons at risk of being infected. In most situations the following guidelines are applicable to all persons - whether they are identified as being infected or not.

The titles available under the series of <u>Workplace Prevention and Management of Acquired Immunodeficiency Syndrome (AIDS) and Human Immunodeficiency Virus Infections (HIV)</u> are:

Guidelines for hospitals, laboratories, and pathologists
Guidelines for funeral directors
Guidelines for home care providers, and long term facilities
Guidelines for providers of prehospital emergency care and resuscitation training
Guidelines for dentistry
Guidelines for correctional and detentional facilities
Guidelines for schools and daycare centres
Guidelines for personal service workers.

ACKNOWLEDGEMENTS

In May 1986, Manitoba Health, Communicable Disease Control, and the University of Manitoba, Department of Continuing Education, sponsored a workshop on infection control strategies for AIDS & AIDS virus (HIV) infections. The workshop was the impetus for these guidelines. The contribution of the participants is appreciated.

WORKSHOP PARTICIPANTS

Marjorie Adrian
Roberta Alcorn
Shelley Allard
Yvonne Anderson
Chris Ansons
Carole Ash
Margaret Barbour
Cordell Barker
Olivier Beaudette
G. Black
Esme Boone
Isabelle Brunel
John Bucltan
Mariann Burka
Wayne Byron
Lucille Chay
Eileen Christiansen
Dorothy Creek
Margaret Day
Doug Delmarque
Eileen Dyck
Dave Edwards
Eleanor Feher
Judith Fraser
John French
Ruth Funk
Diane Gantzel
Charisse Gaske
Jane Gauthier
Carrie Grahame
Shirley Harder
Jim Horn
Donna Hourd
Carmelita Howells
Alice Inniss
Geraldine Irvine
S. Izatt
Beverley Jasperson
J. Joba
Eleanor Jobin
Martin Johnson
Beverley Johnson
Dale Kinniburgh
Rowena Kominko
M. Lasko
Jacqueline Laurendeau
Phyllis Law
Barbara Little
Jessie Little
Dennis Lloyd
Marg Loucks
Winnifred Lund
Annette Maloney
Bonnie Mazerolle
Doug McGiffin
Belle Meiklejohn
S. Moore
Richard Nordrum
Dennis Phillips
Marie Poole
Cheryl Pragnell
Shelly Praznik
Helen Rempel
S. Sanders
Mary Beth Shields
Myrla Smederovac
Joyce Smyth
Genevieve Thompson
Vlieta Thomson
Linda Turner
Alice Unger
Angelo Vitucci
Sandra Webb
Ken Wladyka
Darline Wolfreys
Ronda Yuzark

The Infection Control Subcommittee of the Manitoba Advisory Committee on Infectious Diseases (MACID) has also contributed to the review of these guidelines and members have provided valuable input.

MEMBERS OF INFECTION CONTROL SUBCOMMITTEE OF MACID

Dr. M. Fast
Dr. G. Harding
Ms. P. Kinrade
Ms. D. Phippen
Dr. B. Law
Ms. N. McFarlane
Ms. L. Klass

In addition, valuable suggestions were made by Dr. P. Cooney, Executive Director Manitoba Health Dental Services, Dr. P. Markesteyn, Chief Medical Examiner, Dr. G. Hammond, Director Cadham Provincial Laboratory and Chairman of the AIDS Subcommittee of MACID, Dr. C. Merry, Medical Director of Hematology at Health Sciences Centre, and Dr. R. Robertson, Medical Director Corrections.

As the bibliography indicates, Canada Diseases Weekly Report (CDWR) and Morbidity Mortality Weekly Report (MMWR) recommendations are the basis for many of these guidelines.

M.V. Fast, M.D.
Director
Communicable Disease Control

TABLE OF CONTENTS

	PAGE
Preface	i
Acknowledgements	ii
Introduction to AIDS and AIDS Virus (HIV) Infections	1
Public Education	5
Guidelines For Hospitals	9
Guidelines For Laboratories	21
Guidelines For Pathologists	25
Management of Possible Workplace Exposure to AIDS	35
Glossary	37
Bibliography	39

INTRODUCTION TO AIDS AND AIDS VIRUS (HIV) INFECTION

DEFINITION

Acquired Immunodeficiency Syndrome (AIDS) is a breakdown of the body's immune system - its natural defense against disease. Without this protection, a person is vulnerable to illnesses which a healthy immune system can prevent.

A person with AIDS fights an ongoing battle against many illnesses. Rare forms of pneumonia, skin cancer or brain infection may occur and are eventually fatal.

CAUSE

AIDS is caused by a virus - commonly called the Human Immunodeficiency Virus (HIV) - which attacks the body's immune system. Infection with this virus does not always lead to AIDS. Infected persons may have a mild illness or none at all. As yet, it is not known why some people become ill and others do not. The amount of virus, as well as infection by other viruses, may influence the development of AIDS.

SYMPTOMS

At present, the vast majority of persons with an AIDS virus (HIV) infection (approximately 70%) may feel completely well and have no symptoms. Some infected persons (approximately 25%) have some of the following symptoms: swelling of glands in the neck, armpits and groin, a thick white coating on the tongue, unexplained weight loss, persistent diarrhea, a harsh dry cough, tiredness, fever, or night sweats. These symptoms may be referred to as AIDS-related conditions (ARC). Only about five percent of persons presently infected with the AIDS virus (HIV) have the actual syndrome known as AIDS.

TRANSMISSION (Spread)

How the Virus is Spread

. The AIDS virus (HIV) has been shown to be spread from an infected person to an uninfected person in the following ways:
  - through sexual contact (penis/vagina, penis/rectum, mouth/rectum, mouth/genital)
  - through sharing needles used in injecting drugs,
  - through transfusion or injection of infectious blood or blood products; to help prevent this type of spread, all blood donations in Canada are now screened for evidence of AIDS virus (HIV) infection,
  - from an infected woman to her fetus or newly born baby.

. An individual can be infected with the virus that causes AIDS without having symptoms of AIDS or appearing ill. Infected individuals without symptoms can transmit the infection to others. Once infected, a person is presumed infected for life, but actual symptoms may not develop for many years.

. A single exposure to the AIDS virus (HIV) may result in infection.

How the Virus is NOT Spread

. There is no evidence that the virus is spread through casual social contact such as shaking hands, social kissing, coughing, sneezing, sharing swimming pools, bed linens, eating utensils, office equipment, or being next to or served by an infected person. There is no reason to avoid this type of contact with an infected person.

. It is not spread by the process of giving blood; new transfusion equipment is used for each donor.

. It is not spread by sexual intercourse between uninfected individuals who have maintained an exclusive sexual relationship.

RISK ACTIVITIES

1. Sexual activity with a number of different partners, particularly if they are anonymous.
2. Anal intercourse
3. Intravenous drug abuse.

GROUPS AT RISK

1. Homosexual and bisexual men
2. Intravenous drug abusers
3. Recipients of multiple blood or blood product transfusions prior to 1986
4. Children born to mothers infected with the AIDS virus (HIV)
5. Persons with multiple sex partners.
6. People who are sexually active with individuals who are or may be infected.

AIDS AND AIDS VIRUS (HIV) TESTING

At the present time, blood can routinely be tested only for signs of the virus. These signs are special blood components called antibodies which form in response to the virus. The blood test is available only at the request of a physician and should only be done after appropriate counselling has taken place.

Positive Antibody Test

If antibodies to the AIDS virus (HIV) are found in the blood, it means the person has been infected with this virus at some time. A positive test result does **NOT** mean that a person has AIDS or will get AIDS at some time in the future. It does **NOT** mean the person is immune to (protected from) the virus. It **DOES** indicate that the person has been exposed to the virus, is assumed to carry the virus and could spread it to others.

Negative Antibody Test

A negative test usually means that the person has not been infected with the AIDS virus (HIV).

TREATMENT

At this time there is no treatment which can repair the breakdown of the body's immune system. Treatments are available for many of the illnesses which develop because of the weakened immune system. However, AIDS is always fatal. Most patients die within three years of diagnosis.

PREVENTION

No vaccine is currently available. The only strategy to combat the spread of infection is to prevent the transmission of the virus from one person to another.

PUBLIC EDUCATION

GENERAL PUBLIC

Education of the general public is an essential component of the program to control AIDS and AIDS virus (HIV) infections. Knowledge of how the disease is spread and how to avoid infection should reduce much of the concern which exists in the community. At the same time, accurate information should motivate all individuals to realistically reduce their own risk of acquiring or transmitting this infection.

People infected with the virus may seem completely healthy and may not even know they have it. Although most persons in North America who are known to be infected are in groups at risk, anyone who is exposed can become infected. Therefore, it is prudent for everyone to take precautions to protect themselves from becoming infected. The following information and advice is appropriate for the general public:

- Infection through sexual contact can be avoided by abstaining from sexual activity. Sexually active persons can avoid the AIDS virus (HIV) infection by establishing a mutually exclusive relationship with an uninfected partner.

- Individuals who are sexually active should not have sex with many different people. The more partners one has, the greater the chances of having sex with an infected person.

- The use of condoms is strongly encouraged if there is any possibility that a sex partner has been exposed to or is infected with AIDS virus (HIV). A history of intravenous drug-use or of many sex partners increases the chance that a person may have been infected.

- Sharing needles and syringes should be avoided.

- Anal intercourse should be avoided. It is important to use a condom if one does have anal intercourse.

SCHOOLS

School boards and public health offices are encouraged to develop education programs to inform children, parents, and teachers about AIDS and AIDS virus (HIV) infections. Education about risk factors and risk reduction methods should be factual and non-judgmental.

SCHOOL AND COLLEGE AGED POPULATIONS

Education to these students should emphasize:

- One can virtually eliminate the risk of AIDS and AIDS virus (HIV) infections by saying no to sex and drugs.

- One can reduce the risk of AIDS by practicing responsible sexual behavior with a mutually exclusive partner and avoiding risk activities.

GROUPS AT RISK AND RISK ACTIVITIES

Persons in risk groups and persons who engage in risk activities should be informed about AIDS and AIDS virus (HIV) infections so they can take precautions to minimize their chances of acquiring or transmitting the infection.

The following advice is particularly appropriate for persons who are in known risk groups or who engage in risk activities:

- Use condoms during sexual activity. The proper use of condoms may prevent infection with the virus carried in semen and vaginal fluid.

- Do not have anal intercourse. It can cause sores or cuts in the rectum and the virus may get into the bloodstream through these breaks. If you do have anal intercourse, use a condom.

- Do not have oral sex if you have open sores or cuts in the mouth.

- Do not allow semen, blood, urine or feces to enter the body of a sexual partner.

- Infected women should use a reliable method of contraception to avoid pregnancy.

- Never share needles and syringes with anyone.

- Do not donate blood, organs or sperm.

THE WORKPLACE

It is essential that all individuals be knowledgeable about basic infection control practices and be encouraged to follow them. An educational effort directed to staff in all workplaces is an important aspect of preventing transmission of infections and reducing anxiety and misunderstanding about the infection. Although educational initiatives need to address communicable diseases in general, specific emphasis should be directed at AIDS and AIDS virus (HIV) infections. The goal of this education is to combat fear that is based on misinformation or lack of information and to minimize the risk of transmission of AIDS virus (HIV) by promoting good health practices. These include routine use of infection control precautions and eliminating risk behaviors. Staff also need to be provided with information regarding the signs and symptoms of AIDS virus (HIV) infections, the methods of transmission of the virus and preventive measures. This information should be presented in terms that are easily understood and should include literature in foreign languages if required.

GUIDELINES FOR HOSPITALS

I. DEVELOPMENT OF AN AIDS PROGRAM IN HOSPITALS

In some hospitals, the admission of an AIDS patient or the identification of an infected health care worker (HCW) has been disruptive to normal hospital routine and has significantly impaired the ability of the hospital to function effectively. This has occurred primarily because of widespread anxiety and misunderstanding about the disease. A few hospitals have had major problems with such things as personnel management, maintaining patient census, willingness of physicians to use the hospital, and public relations. A hospital that anticipates these problems and plans for them can avoid most of them.

Every hospital should address the policy and management issues raised by treatment of patients with AIDS. This is particularly important for hospitals that have had little or no experience with AIDS patients. Most hospitals that have treated large numbers of AIDS patients have already developed policies and procedures to deal with the numerous issues that AIDS brings to the hospital.

A Prospective AIDS Education Program

The hospital should recognize that the admission of an AIDS patient may cause substantial anxiety among some staff members and patients who are concerned about their personal safety. Moreover, a person with AIDS is also anxious and coping with a serious disease. Persons with AIDS have sometimes been shunned or abandoned by family or close friends, and they may feel similarly neglected or abused by hospital personnel unless special supportive steps are taken by hospital staff members. These non-medical needs of both patients and staff may become so pressing that medical care of AIDS and other patients may be compromised.

Hospitals that have developed aggressive education and intervention programs for their staff, including the medical staff have been successful in minimizing anxiety and disruption. Intensive efforts at education and crisis

intervention by skilled, knowledgeable, and respected hospital personnel are perhaps the most useful activities to ensure that a hospital continues to function adequately when an AIDS patient is admitted. Several hospitals have developed special teams who are readily available to answer medical questions about AIDS, advise about appropriate practices, and provide support to personnel and patients. These teams usually include an infection control nurse, a psychiatric social worker, a psychiatrist, a nursing administrator, and a patient advocate.

Widespread and open discussion of the issues raised by treating patients with AIDS appears to be beneficial, especially when that discussion occurs before a patient with AIDS is actually admitted. Some hospitals have made special efforts to involve persons from support services, such as housekeeping, dietary, laboratory, and radiology departments, in these discussions. Some hospitals have also found it useful to add hospital labor union representatives to these study groups. When a broadly based group of hospital employees participates in discussions of what is known and what is not known, they are likely to respond appropriately when given the opportunity to care for a patient with AIDS.

Hospitals should consider the formation of a special AIDS coordinating group, which would have broad educational and supportive responsibilities within the hospital setting. The group must have visible and aggressive support from both administration and professionals. In small hospitals, the group might consist of only one or two individuals.

The coordinating group should develop education programs directed toward all levels of hospital personnel. If possible, the program should be implemented before an AIDS patient is admitted. Representatives from the employee or staff groups to be educated should be involved in determining the content of the educational program.

Occasionally, physicians caring for patients with AIDS may wish to employ extraordinary or overly stringent precautions. Such instances have been demoralizing to the patient and to hospital personnel, and disruptive to patient care. It is particularly harmful when a physician uses extra

ordinary precautions since that unnecessarily raises anxiety on the part of patients and other hospital personnel. The AIDS coordinating group is encouraged to work with the medical staff organization to ensure uniform and consistent application of recommended AIDS precautions throughout the hospital.

Patient Confidentiality

Hospitals should be careful to balance the need to ensure appropriate pre-cautions to prevent spread of disease with the need to ensure appropriate confidentiality of their patients. Patients with AIDS, like other patients with diseases spread by blood, will need to have laboratory tests performed, and they may need specialized procedures such as surgery or other invasive procedures. In addition, they may need to be transported to other hospital departments for proper management. The hospital should develop a procedure that ensures all staff who care for these patients know what pre-cautions are to be taken. Because of the publicity that AIDS has received, special care needs to be taken to preserve the dignity and confidentiality of AIDS patients. Unless such procedures are outlined, there are dangers that patients will not be appropriately identified, with the result that proper precautions will not be taken or, alternatively, that confidentiality will not be preserved. The general designation "Blood/Body Fluid Pre-cautions," should be sufficient if utilized uniformly throughout the hospital. The precautions, but not the diagnosis must be clearly identified.

Public Relations

Public relations issues present both problems and opportunities. Some hospitals have found that the treatment of patients with AIDS has had adverse public relations consequences. On occasion, members of the press have placed disruptive and time-consuming demands upon hospital staff. On other occasions, patients or members of the medical staff have placed inappropriate demands on the hospital, such as by asking that AIDS patients not be treated in the institution. The hospital must not allow these disruptions to interfere with patient care. The use of an AIDS coordinating team, as previously recommended, is especially useful in dealing with

disruptions by staff members and patients, since education will often allay inappropriate concerns. In many communities, contact with news media will present unique opportunities for hospitals to assume leadership roles in public education about AIDS.

In dealing with the press, careful and honest sharing of information will usually diminish adverse publicity and promote public education. The hospital should establish the following principles for dealing with the press:

1) patient confidentiality and dignity must be preserved;
2) a knowledgeable and authoritative representative of the hospital must be the designated representative to the press;
3) other hospital staff members should be required to coordinate all press communication through that representative.

Personnel Management

Some health care workers (HCW), including physicians, have been reluctant to provide hands-on care to AIDS patients. However, at this time there is no evidence that the risks in doing so are any greater than the risks associated with caring for any other sick persons. Otherwise healthy HCWs should not be excused on their own request from providing care to patients with AIDS; there is no scientific or ethical reason to do so. If an employee simply refuses to perform his or her duties in relation to caring for AIDS patients, the issue become a legal and administrative problem to be resolved on an individual basis. Hospitals are urged to solicit the advice of their legal counsel in such situations.

Health care personnel who believe they may be at increased risk because they are immunosuppressed or have other clinical conditions that may confer an increased risk of acquiring an infection should discuss their work responsibilities with the employee health service or with their own personal physician. If the physician determines that that person is indeed at an increased risk, or that there are certain work assignments that the employee should not accept in relation to the care of AIDS patients, a written recommendation of appropriate action in accordance with that institution's per

sonnel policies and procedures should be provided to the employing department.

Pregnant Personnel

There is no known increased risk to pregnant personnel from caring for uninfected AIDS patients. However, many patients with AIDS excrete large amounts of cytomegalovirus; hence, it is recommended that hospitals follow existing policies with regard to possible cytomegalovirus exposure to pregnant personnel.

II. PATIENT CARE PRECAUTIONS

Most of these precautions should be employed for ALL patients. They are particularly important for patients who have AIDS or AIDS virus (HIV) infection or who are at high risk of being infected. Persons who are at highest risk of infection include:

1) homosexual & bisexual men
2) intravenous drug abusers
3) recipients of multiple blood or blood product transfusions prior to 1986
4) children born to infected mothers
5) persons with numerous sex partners
6) sex contacts of risk group members.

Routine screening of individuals admitted to hospital is not warranted.

Extreme care must be taken to avoid accidental wounds from sharp instruments contaminated with potentially infectious material and to avoid contact of open skin lesions with such material.

HANDWASHING

Hands must be washed before and after all direct patient contact and must be washed thoroughly and immediately if they become contaminated with blood or body fluids.

GLOVES

Recommended for contact with blood or body fluids, secretions or excretions, as well as surfaces, materials and objects exposed to them.

NEEDLES AND SYRINGES

Extreme care is necessary to avoid accidental wounds from needles and sharp instruments.

Preferably disposable and disposed of in rigid, non-permeable, puncture-resistant containers. If reusable syringes are used, they must be decontaminated before reprocessing.

Needles should <u>not</u> be recapped and should <u>not</u> be purposely bent or broken by hand.

BLOOD/BODY FLUID SPILLS

Should be wiped up immediately with an appropriate disinfectant, e.g. bleach solution (See Glossary, page 37) to be prepared daily or glutaraldehyde.

GOWNS

Should be worn if clothing may be soiled with blood, body fluids, secretions or excretions.

Protective clothing such as gowns, lab coats, disposable plastic aprons, masks and eye-coverings should not be worn unless there is a possibility of splattering with blood, secretions, excretions or other body fluids through procedures such as endoscopy or intubation.

MASKS

Not necessary for routine care of AIDS virus (HIV) - infected persons.

Recommended for health care personnel who have close sustained contact with infected persons who are coughing extensively or who are intubated and being suctioned, and in other situations in which splatter with blood and body fluids may occur.

PROTECTIVE EYEWEAR

Only recommended in situations in which splatter with blood or body fluids is possible (e.g. endotracheal intubation, bronchoscopy, endoscopy).

RESUSCITATION

Disposable ambu-bag and oral airway should be immediately available.

If reusable equipment is used, it must be cleaned and gas-sterilized before reuse.

LABORATORY SPECIMENS

Blood and other body fluid specimens such as urine, stool, sputum, peritoneal fluid, bile and semen should be placed in sterile containers with the lid securely closed. If the outside of the specimen container

is visibly contaminated, it should be cleaned with a disinfectant (see Blood/Body Fluid Spills). Containers should be clearly labelled "Blood and Body Fluid Precautions" and then placed in a clear impervious plastic bag.

Each lab specimen should be placed in a separate bag. These specimens should not be transported in a pneumatic/vacuum system.

Requisitions accompanying these specimens also should be marked with "Blood and Body Fluids Precautions" stickers. The requisition should be attached to the outside of the bag to avoid the risk of contamination.

SPHYGMOMANOMETER AND STETHOSCOPE

If visibly contaminated, wipe with a bleach solution (See Glossary, page 37).

THERMOMETERS

Reserve for patient use only.

Wash with warm soapy water and then soak in 70% alcohol for 10 minutes.

ARTICLES

Gloves must be worn while handling contaminated articles.

Disposable patient care supplies should be used whenever possible.

Articles soiled with blood/body fluids should be placed in an impervious bag labelled "Blood & Body Fluid Precautions" before being sent for reprocessing or disposal.

Disposable items should be incinerated or disposed of in accord with the hospital's policy for the disposal of infectious waste.

Reusable items should be reprocessed according to hospital polices for contaminated items.

LINEN

Mattresses and pillows should be covered with impervious plastic. No special precautions are needed with linens unless they are contaminated with blood or body fluids in which case they should be double-bagged and processed according to the hospital's existing policy regarding linens from patients on isolation precautions.

PRIVATE ROOM

Not routinely necessary.

Recommended for patients who are too ill to use good hygiene, such as those with profuse diarrhea, fecal incontinence or altered behavior secondary to central nervous system infections.

Will be necessary in the presence of other infections which require a private room (e.g. tuberculosis).

A person who is immunocompromised or infected with potentially transmissible pathogens should not share a room with a patient who has an AIDS virus (HIV) infection.

DISHES

No special precautions are necessary.

EQUIPMENT

All reusable equipment/instruments must be decontaminated after use:
(i) Appropriate physical cleaning;
(ii) Sterilization or high level disinfection.

Gloves and other appropriate protective attire must be worn when handling contaminated equipment/instruments.

1. Surgical instruments should be routinely sterilized between use by steam under pressure (autoclaving), dry heat, or gas sterilization (e.g. ethylene oxide).

2. Lensed instruments (e.g. bronchoscope, endoscope) should be gas-sterilized with ethylene oxide if possible. Alternatively they can be sterilized with glutaraldehyde used according to the manufacturer's instructions.

   If possible, surgical procedures on infected or high risk patients should be scheduled at the end of the day to allow sterilization overnight.

3. Respiratory-therapy tubing must be thoroughly washed and at least pasteurized after each use in a patient (75°C for 20 minutes).

III. HEALTH CARE WORKERS

There have been no reports of AIDS virus (HIV) transmission from an infected health care worker (HCW) to a patient.

HCWs known to be infected with the AIDS virus (HIV) need not be restricted from work unless they have evidence of other infection or illness for which any HCW should be restricted.

The following guidelines are recommended:

1) All HCWs should wear gloves for direct contact with mucous membranes or non-intact skin of all patients.

2) All HCWs who have exudative lesions or weeping dermatitis should refrain from all direct patient care and from handling patient-care equipment until the condition resolves.

3) All HCWs who perform or assist in operative, obstetric, or dental invasive procedures must:

   i) be educated regarding the epidemiology of AIDS and AIDS virus (HIV) infections.

   ii) wear gloves when touching mucous membranes or non-intact skin.

   iii) use extraordinary care to prevent injuries to hands caused by needles, scalpels and other sharp instruments used during procedures.

   iv) not perform or assist in invasive procedures or other direct patient-care activities or handle equipment used for patient care if he/she has exudative lesions or weeping dermatitis.

4) Routine serologic testing for evidence of AIDS virus (HIV) infection is not necessary for HCWs.

GUIDELINES FOR LABORATORIES

Clinical Specimens: The manipulation of clinical specimens which contain, or are believed to contain, human immunodeficiency virus (HIV) may be performed in a basic microbiology laboratory. All laboratory workers should recognize that HIV has been isolated from most body fluids and that transmission is possible through the percutaneous or parenteral exposure by selfinoculation with needles, broken glass or other sharp objects, and by direct contamination of cuts, scratches, abrasions or mucosal surfaces. The use of a biological safety cabinet or other primary containment device is necessary for procedures which create aerosols, such as mixing, shaking, grinding and sonicating. Where there is reason to believe that these specimens may contain other pathogens which require specialized containment, they must be examined in the appropriate environment (e.g. a containment laboratory). Accordingly, the special practices taken for the handling of specimens infected with hepatitis B virus are appropriate for handling of HIV-infected material. However, when propagating the virus, a CDC/NIH level 3 (P3) biosafety containment facility must be used.

The following precautions are advised for persons performing laboratory tests or studies on clinical specimens or other potentially infectious materials from high-risk persons:

HANDWASHING

All personnel should wash their hands following completion of laboratory activities, after removal of protective clothing, and before leaving the laboratory.

GLOVES

Should be worn to avoid skin contact with blood, specimens containing blood, blood-soiled items, body fluids, excretions and secretions, as well as surfaces, materials, and objects exposed to them.

NEEDLES & SYRINGES

Should be handled with extreme care to avoid accidental wounds; preferably disposable and disposed of in rigid, non-permeable, puncture-resistant containers. If reusable syringes are used, they must be decontaminated before reprocessing. Needles should not be recapped and should not be purposely bent or broken by hand.

Protocols should be developed that avoid the use of needles and glassware.

BLOOD/BODY FLUID SPILLS

Should be wiped up immediately with an appropriate disinfectant, e.g. bleach solution (See Glossary, page 37) or glutaraldehyde.

GOWNS

Laboratory coats, gowns or uniforms should be worn while working with potentially infectious materials and must not be worn outside the laboratory.

PIPETTING

Mechanical pipetting devices should be used for the manipulation of all liquids in the laboratory. Mouth pipetting should not be allowed.

ARTICLES

All potentially contaminated materials used in laboratory tests should be decontaminated, preferably by autoclaving, before disposal or reprocessing.

SURFACES

Laboratory work surfaces should be decontaminated with a disinfectant, such as bleach solution (See Glossary, page 37) prepared fresh daily, or glutaraldehyde, following any spill of potentially infectious material and at the completion of work activities.

All procedures and manipulations of potentially infectious material should be performed carefully to minimize the creation of droplets and aerosols.

Biological safety cabinets and other primary containment devices (e.g. centrifuge safety cups) are advised whenever procedures are conducted that have a high potential for creating aerosols or infectious droplets. These include centrifuging, blending, sonicating, vigorous mixing, and harvesting infected tissues from animals or embryonated eggs. Microhematocrit analysis presents particular problems and alternate tests are advised. Fluorescent activated cell sorters generate droplets that could potentially result in infectious aerosols. Translucent plastic shielding between the droplet-collecting area and the equipment operator should be used to reduce the presently uncertain magnitude of this risk. Primary containment devices are also used in handling materials that might contain concentrated infectious agents or organisms in greater quantities than expected in clinical specimens.

GUIDELINES FOR PATHOLOGISTS

It is recognized that the decision to perform an autopsy on a patient with confirmed or suspected AIDS virus (HIV) infection depends on a number of factors. The following guidelines have been prepared for institutions which perform or intend to perform full or limited autopsies on persons with AIDS virus (HIV) infection. They indicate safe, secure procedures that should be undertaken to protect the health of the pathologist and his/her staff.

Caution should be exercised in handling excretions, secretions, blood and body fluids from (1) any suspected case of AIDS, ARC and AIDS virus (HIV) infections; (2) any patient who has AIDS; (3) any patient who has chronic, generalized lymphadenopathy and unexplained weight loss, and/or prolonged unexplained fever whose clinical history may suggest an epidemiological risk for AIDS virus (HIV) infection; (4) any person who is anti-HIV positive; (5) any person who is in a risk group and is not known to be AIDS virus (HIV) negative.

Some of the recommendations are based on established guidelines for the control of hepatitis B transmission which focus on the appropriate handling of blood and body fluids; other recommendations are based on the epidemiology of AIDS virus (HIV).

The recommendations have been divided into 3 sections:

a) obtaining specimens from persons with AIDS virus (HIV) infection;
b) performing an autopsy;
c) handling of specimens.

RECOMMENDATIONS

A. Obtaining Specimens from Persons with AIDS virus (HIV) Infection

1. Only the minimum essential amount of blood should be drawn and then only by staff who are trained and experienced.

2. Sharp instruments such as needles and scalpels should be considered potential vehicles for infection by accidental injury and should be used with extreme care.

3. Disposable syringes, needles, scalpels or other sharp instruments should be used whenever possible; however, if items are to be reused, they should be decontaminated before reprocessing.

4. Needles should not be recapped, bent, broken, removed from disposable syringes, or otherwise manipulated by hand. Only needle-locking syringes or one-piece needle-syringe units should be used to aspirate fluids from patients.

5. Syringes and needles, scalpel blades, etc., should be discarded immediately after use in puncture-resistant containers used only for such purposes and located as close as possible to the work area. The containers should be labelled to indicate their potential infectiousness (e.g., biohazard, blood precautions, danger of infection).

6. Gloves should be worn whenever there is the possibility of contact with blood, blood products, excretions, secretions or other body fluids as well as contaminated equipment and surfaces.

7. Hands should be washed thoroughly after removing gowns and gloves and before leaving the room of a patient with known or suspected AIDS virus (HIV) infection; also, hands should be thoroughly washed as soon as possible after accidental contamination with blood.

8. Blood and other specimens should be labelled to indicate their potential infectiousness: "Blood and Body Fluid Precautions." If the outside of the container is soiled, it should be wiped with bleach solution*. All blood/body fluid specimens should be placed in a second container, such as a leak-proof bag, for transport. Accompanying requisitions should be attached to the

outside of the leak-proof bag and should be clearly and visibly labelled to indicate potential infectiousness.

9. Blood/body fluid spills should be cleaned up with bleach solution (See Glossary, page 37). Disposable absorbent material such as paper towels should be used.

B. Performing an Autopsy

B-1 Case Categories

Because of the complexity of the procedure and the potential for exposure to infectious materials, the indications for autopsy, including the information to be obtained and the procedures to be used, should be clearly defined before a decision to proceed is made. These situations indicate three categories:

1) A person in whom (a) AIDS virus (HIV) infection has been identified, and/or (b) the clinical manifestations of AIDS or AIDS related conditions are clearly present;

2) A person in whom (a) the diagnosis is probable or highly probable but not conclusive, and/or (b) the clinical manifestations are non-specific, and/or (c) the effect of clinical management has not confirmed a diagnosis;

3) A person who is found to have AIDS virus (HIV) infection or a marker disease for AIDS at autopsy with no suspicion or evidence of infection beforehand.

B-2 Autopsy Decision Process

An autopsy performed on a person classified "Category 1" would confirm pathologically the cause of death as well as providing information not available antemortem which might contribute to a clearer understanding of the pathogenesis of the disease, or effect a change in the clinical management of other cases.

An autopsy on a person classified "Category 2" would validate the diagnosis, elucidate more fully clinical features, assess the effectiveness of a specific treatment regimen, or provide medico-legal information useful in the case.

The attending staff physician must consult with the pathologist prior to autopsy to discuss fully the nature of the case and to address specific questions which need to be answered. The questions should be substantive and accompanied by complete up-to-date documentation of the patient's clinical history.

The pathologist should review the information and the questions to be addressed. Assuming that there are no extraordinary factors which may inhibit the performance of an autopsy, the procedure should be carried out in accordance with the guidelines described in B-3. The autopsy should be performed within a time period which facilitates the gathering of histological and microbiological specimens.

Where an autopsy has been carried out on a person who had no suspicion of AIDS virus (HIV) infection (Category 3), a clinico-pathological review should be undertaken. The objectives of this review should increase the awareness of, and diagnosis of, AIDS virus (HIV) infection and its clinical consequences.

In addition, particular attention should be paid to the conduct of the autopsy, post facto, and to the possible identification of persons who might have been exposed parenterally or percutaneously to infected blood, body fluids and tissue. Appropriate action should be taken to carry out personal surveillance on any person identified.

Circulating Assistant: The pathologist should be assisted by a third person during autopsy. All participants are to be gowned and gloved. The third person functions as a circulating assistant and does not directly participate in the autopsy. The scenario is analogous to that of an operating theatre where the surgeon and his/her assistant remain at the operating table and a circulating nurse manages supplies and instruments. The circulating assistant remains "clean" avoiding direct contact with contaminated tissues and body fluids. This person should assist in obtaining instruments and containers and should ensure that areas outside the immediate dissection area do not become contaminated.

B-3 Performing the Autopsy

1. The body of the deceased should be identified as "AIDS virus (HIV) infected"; identification should remain with the body.

2. The body should be wrapped in a leak-proof shroud secured with tape. If the shroud has been secured with safety pins, extreme care should be taken in opening the pins. Orifices should be packed appropriately; tubes, drains and catheters should remain in place and blocked or tied.

3. The autopsy should be performed in a room equipped to limit contamination and restrict access to unauthorized personnel. If this is not available, the autopsy should be performed as the last one of the day.

4. The pathologist should review the case with the clinical staff involved (including interns, residents and medical students). The information to be obtained, the specimens to be collected, the procedures to be used, and the potential risks of infection should be clearly delineated beforehand in discussion with the patient's clinicians.

5. Only body compartments (skull, chest, abdomen, limbs, etc.) which correspond to the questions being addressed should be opened, and

respective organs and tissue removed and dissected. Brain and spinal cord should not be routinely examined unless specifically indicated by the decision process defined above.

6. The autopsy should be performed on one table or stretcher.

7. No smoking, drinking or eating should be allowed in the autopsy room.

8. The autopsy should be performed by at least 3 people - the prosector, an assistant and a circulating assistant. Observers should wear protective clothing and be restricted to areas where contamination is minimized.

9. Gloves, protective eyewear, masks, caps and gowns (or disposable jumpsuits and hoods), waterproof aprons and waterproof shoe coverings should be worn by all participants.

10. Two pairs of autopsy gloves, intact and unpunctured, should be worn by all participants; however, care should be taken not to impair manual dexterity. If the gloves leak, or become torn or punctured (without laceration or abrasion to the hand), they should be removed, hands washed thoroughly and new gloves used.

11. Persons who have open or healing wounds, or skin infections should not perform or assist in the autopsy.

12. Prior to autopsy, a 1:10 dilution of 5.25% sodium hypochlorite solution (a final concentration of 0.5%) should be freshly prepared and placed where it is easily accessible. This solution should be used to disinfect all potentially contaminated objects and surfaces during and after autopsy. Any left-over solution should be discarded and not stored overnight.

13. Sodium hypochlorite should be added to bottles used to collect aspirated body fluids and wastes to obtain a final concentration of 0.5% (v/v).

14. Specimen containers filled with 10% formalin or appropriate preservative should be prepared beforehand and placed where they are readily accessible.

15. A sufficient number of leak-proof bags and puncture-resistant containers should be readily available for transport and disposal of specimens, blood/body fluids, and sharp instruments. These should be so placed to avoid external contamination, and should be appropriately labelled.

16. The organ block should be dissected in the usual manner followed by fixation of individual organs prior to further study. If pulmonary disease is suspected, the lungs should be inflated with formalin.

17. Omission of dangerous dissections or dissection organ by organ instead of using the Rokitansky procedure should be considered in some cases.

18. In order to minimize aerosol creation, organs should be handled as gently as possible and sectioned with care. Organs should not be sprayed with high pressure water. It should be noted that the use of scissors can also create aerosols.

19. Procedures which eliminate or minimize aerosol production and spread should be used. A hand saw or bone cutter should be used in preference to an electric saw in cutting bone. If a Stryker saw is used, the blade should be covered with a towel soaked in sodium hypochlorite solution. Note that this technique can only be used if the motor is separate from the blade.

20. Ragged bone ends should be looked for and covered with towels or bone wax.

21. Extreme care should be taken to prevent accidental cuts or lacerations by possibly contaminated instruments and/or bone ends, and accidental splash by contaminated blood/body fluids. All body fluids and tissue should be considered potentially contaminated.

22. Any person who suffers a cut or needlestick injury should disengage himself immediately from the autopsy. The wound should be allowed to bleed freely for a few minutes, washed with soap and water, and treated with a fresh solution of disinfectant. A pressure dressing can then be applied.

23. If eyes or skin are splashed with blood/body fluid, they should be washed immediately with running water.

24. All injuries should be reported to the staff pathologist, the head of autopsy service and the employee health unit. A permanent record of the accident should be maintained. See Management of parenteral and mucous membrane exposure.

25. Photography should only be undertaken during the autopsy if absolutely required. Organs should be photographed only after fixation has occurred.

26. Syringes and needles, scalpel blades and other sharp instruments should be discarded immediately after use in puncture-resistant containers used only for this purpose. The containers should be clearly labelled to indicate their potential infectiousness (e.g., biohazard, blood precautions, danger of infection).

27. Non-liquid disposable items and material from dissection should be placed in tightly-secured double plastic bags clearly labelled to indicate potential infectiousness. These items and material should then be autoclaved, cremated or incinerated as appropriate.

28. Unsterilized samples of blood, body fluid or tissue for culture or chemical analysis should be labelled to indicate potential infectiousness. Where possible, the outside of containers should be wiped with bleach solution (See Glossary, page 37), then placed in a second leak-proof container for transport and storage.

29. Blood and other body fluids that are not to be saved, and contaminated water, should be treated with undiluted sodium hypochlorite solution (a concentration of 5.25%) for at least 30 minutes before disposal directly into the sanitary sewer.

30. Blood/body fluid spills should be cleaned up immediately with sodium hypochlorite solution. Disposable absorbent material such as paper towels should be used for clean-up.

31. All instruments and the autopsy table should be considered contaminated and potentially infectious. All working surfaces and instruments should be disinfected with sodium hypochlorite solution and then instruments autoclaved appropriately.

32. No organs or tissue should be used for transplants.

33. Protective clothing should be placed in double plastic bags clearly labelled to indicate potential infectiousness. The clothing should be discarded, if disposable, or laundered.

34. Participants should wash their hands following completion of the examination, after removal of protective clothing, and before leaving the autopsy room.

35. If disposable shoe coverings have not been worn, a mat soaked in bleach solution (See Glossary, page 37) may be placed at the autopsy room's exit.

36. The circulating assistant should notify (by phone or word of mouth) the funeral director who will be receiving the body that the person died with AIDS or had evidence of infection with AIDS virus (HIV). In addition the body should be clearly labelled as "AIDS or AIDS virus (HIV) infection."

C. **Handling of Specimens**

These recommendations should be read in conjunction with the Guidelines for Laboratories.

1. **All specimens must be properly labelled ("Blood and Body Fluid Precautions") to indicate their potential infectiousness.**

2. **Surgical specimens should be handled with great caution. A temporary or permanent work area should be made available which restricts exposure to personnel and in which all contaminated material, surfaces, instruments and equipment can be identified, contained and subsequently decontaminated. Large specimens should be dissected in the post-mortem area, whenever possible. Gloves, gowns and other protective wear should be used wherever appropriate. Attention should be directed at labelling, packaging and transporting specimens.**

3. **Small tissue specimens can be placed in the usual way in 10% buffered formalin. The larger specimens or whole organs should be sliced and placed in 10% formalin for one week. At the end of one week, replace this with fresh formalin. Leave for another week and then complete the dissection.**

4. **Whenever possible, frozen sections should not be made on unfixed material. However, when the examination of unfixed material is essential for special staining, the work must be carried out using equipment located in an area which allows containment and which receives attention with regard to safe operation and disinfection.**

5. **Large, unfixed specimens should be handled gently to minimize splashing and aerosol formation.**

6. **Gloves and adequate protective clothing should be worn for handling all unfixed material.**

7. **All materials which are to be discarded must be autoclaved or cremated before disposal.**

MANAGEMENT OF PARENTERAL & MUCOUS MEMBRANE EXPOSURES

If a worker or a patient/client has a needle puncture or cut to the skin or mucous membrane (e.g., splash to the eye or mouth) exposure to blood or other body fluids, the source person should be assessed clinically and epidemiologically by a physician to determine the possibility of AIDS virus (HIV) infection.

If such infection may exist, the source person should be informed of the incident and requested to consent to blood testing for evidence of AIDS virus infection. If the source patient is found to be infected or declines testing, the person who was exposed to possible infection should be evaluated clinically and serologically for evidence of AIDS virus (HIV) infection as soon as possible. If the exposed person's first blood test is negative, he or she should be retested after a period of 6 weeks and again at 3, 6 and 12 month intervals to determine if transmission has occurred. If the source person continues to show a negative test and has no evidence of AIDS virus (HIV) infection, no further follow-up is necessary.

GLOSSARY

AIDS	The Acquired Immunodeficiency Syndrome.
ARC	AIDS-related Complex.
HIV	Human Immunodeficiency Virus: causative agent of AIDS; formerly known as Human T-Lymphotropic Virus III/ Lymphadenopathy Associated Virus (HTLV-III /LAV).
HCW	Health Care Worker
HBV	Hepatitis B Virus
PSW	Personal Service Worker
Antiseptic	a chemical agent having the ability to destroy potentially infective micro-organisms and which can be used safely on living tissues.
Bleach Solution	the most commonly recommended disinfectant in these guidelines is bleach solution i.e. a 0.5% sodium hypochlorite solution which can be prepared by mixing household chlorine bleach - (5.25%) one part bleach to nine parts water. It must be prepared fresh daily. This solution is detrimental to metal and must be used with caution on metal surfaces.
Cleaning	the removal by scrubbing and washing, as with hot water, soap or detergent, of infectious agents and of organic matter from surfaces on which and in which infectious agents may survive and/or multiply.
Disinfection	the use of germicidal chemical agents to destroy potentially infective microbes. Generally refers to inanimate objects.
Sterilization	the use of physical or chemical agents to eliminate all viable microorganisms. Steam and gas autoclaving and dry heat ovens are the common methods.

BIBLIOGRAPHY

1. Acquired Immune Deficiency Syndrome (AIDS): Precautions for clinical and laboratory staff. (1982). Morbidity and Mortality Weekly Report, 31(43), 577-580.

2. Acquired Immunodeficiency Syndrome (AIDS): Precautions for pathologists. (1986). Canada Diseases Weekly Report, 12(37), 159-166.

3. Additional recommendations to reduce sexual and drug abuse-related transmission of HTLV III/LAV. (1986). Morbidity and Mortality Weekly Report, 35(10), 152-155.

4. AIDS: Guidelines for funeral directors. (1986). Canada Diseases Weekly Report, 12(45), 203-208.

5. AIDS: Guidelines for laboratories. (1986). Canada Diseases Weekly Report, 12(37), 166-168.

6. AIDS: policy for correctional facilities. (1985, December 20). Alaska Epidemiology Bulletin.

7. Australia Council of Trade Unions (1985). ACTU-VTHC occupational health and safety unit health and safety bulletin, 45.

8. City & County of San Fransisco Department of Public Health. (Guidelines) for police, fire and ambulance services.

9. The control of transmissible diseases in dental practice: A position paper of the American Association of Public Health Dentistry. (1986). Journal of Public Health Dentistry, 46(1), 13-21.

10. Education and foster care of children infected with Human T-Lymphotropic Virus Type III/Lymphadenopathy. (1985). Morbidity and Mortality Weekly Report, 34(34), 517-521.

11. Guidelines for household contacts of HTLV-III/LAV - reactive persons and AIDS patients. (1986). Canada Diseases Weekly Report, 12(16), 65-67.

12. Guidelines for people responsible for education and day care of children with HTLV-III/LAV infection (1986). Canadian Medical Association Journal, 135, 135-136.

13. Guidelines for those responsible for day care and education of children with HTLV-III/LAV infections (1986). Canada Diseases Weekly Report, 12(16), 67-70.

14. Health & Welfare Canada. (1986). AIDS in Canada: What you should know.

15. A hospitalwide approach to AIDS. (1984). Infection Control, 5(9), 242-248.

16. Infectious disease issues in resuscitation training. (1984). Canada Diseases Weekly Report, 10(48), 189-191.

17. Precautions for the home care of patients with acquired immuno deficiency syndrome (AIDS). (1985). Canada Diseases Weekly Report, 11(34), 145-146.

18. Recommendations for decontaminating manikins used in cardio pulmonary resuscitation training. (1984). Respiratory Care, 29(12), 1250-1252.

19. Recommendations for preventing transmission of infection with Human T-Lymphotropic Virus Type III/Lymphadenopathy Associated Virus during invasive procedures. (1986). Morbidity and Mortality Weekly Report, 35(14), 221-223.

20. Recommended infection - Control practices in dentistry. (1986). Morbidity and Mortality Weekly Report, 35(15).

21. State of Wisconsin Department of Health & Social Services. (1986). Preventing the transmission of HTLV-III in the prison setting.

22. Summary: Recommendations for preventing transmission of infection with Human T-lymphotropic virus type III/Lymphadenopathy-associated virus in the workplace. (1985). Morbidity and Mortality Weekly Report, 34(48), 681-695.